

APPLICATION FOR UNITED STATES LETTERS PATENT
FOR

**APPARATUS AND METHOD FOR AN
INTERNET BASED COMPUTER
RESERVATION BOOKING
SYSTEM**

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APPARATUS AND METHOD FOR AN INTERNET
BASED COMPUTER RESERVATION
BOOKING SYSTEM

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Related Application(s)

This application claims the benefit of priority under 35 USC §119(e) of
provisional application No. 60/083,651, filed April 30, 1998 entitled "Apparatus and
10 Method for a Computer Reservation System that is Accessible Over the Internet", hereby
incorporated by reference herein.

Field of the Invention

The present invention relates to computer software, and more particularly, to an
15 Internet based computer reservation system.

Background of the Invention

Since the introduction of web browsers by companies such as Netscape
Communications, a division of America On-line and Microsoft Corporation, the Internet
20 has seen an explosion of activity. Businesses, both big and small, are creating web sites
to obtain wide exposure, to inform the public of their goods and services, and to conduct
Internet commerce. Web sites that are in current use by businesses are of varying
sophistication.

25 The least sophisticated type of web site used by merchants are those that simply
present information. These web sites typically display information about the merchant's
organization, contact information, and goods or services. These web sites are not
interactive and do not permit two-way communication. A person accessing the web site
therefore can not provide the merchant information necessary for commerce, such as a
30 product selection, name, ID, credit card number, etc., over the Internet. Accordingly,
these types of web sites are not conducive for Internet commerce and are of limited value.

More sophisticated web sites useful for conducting business over the Internet generally provide for two-way communication. These web sites typically include web page(s) to display a merchant's goods and/or services for sale, and pages for allowing a person viewing the web site to make a purchase over the Internet. For example, a web site for a bed and breakfast inn may include photographs and information about the inn. A user accessing the web site may make a room reservation at the inn by selecting a room and a date for the reservation using either pull down menus or typing such information into predetermined fields included on the web site. The information is then emailed to the computer maintaining the web site. The problem with this type of web site is that it is typically a "stand-alone" piece of software, not linked or integral to other computer systems or software the merchant may use in the ordinary course of business. The merchant is therefore required to take the reservation information (name, date, party size, rate, etc.) received by email, and manually enter it into the reservation system ordinarily used by the inn. The merchant is then required to confirm the reservation with the customer by either a return email, by facsimile, or by telephone. The customer does not receive a real-time confirmation. This method is therefore inefficient, cumbersome, and prone to error and leaves the Internet user with an "incomplete" web experience.

The most sophisticated web sites used for Internet commerce typically include databases and are highly interactive. These web sites permit users to perform on-line searching, enter queries, make purchases, and access database information over the Internet. See for example the web sites for Amazon.com (www.amazon.com), and United Airlines (www.ual.com). The problem with these web sites is that they need to be custom created by software experts with a high degree of skill and expertise. These web sites are therefore very expensive and time consuming to create and are well beyond the means of most merchants hoping to conduct business over the Internet.

The vast majority of service oriented businesses that sell an inventory of time-slots (e.g. restaurants, golf courses, bed and breakfast inns, spas, etc.) still use "pencil and

paper” systems to keep track of their reservations/appointments. Unlike eCommerce retailers selling goods over the Internet, these merchants have yet to participate in the Internet revolution. An easy to use, flexible, customizable Internet based reservation software package that enables such merchants to capitalize on the Internet revolution is
5 therefore needed.

Summary of the Invention

The present invention is a software product and system that provides merchants that sell time-slot inventories tools to capitalize on the Internet revolution. The present
10 invention enables the creation of web-sites for merchants with a built-in web-based reservation booking system. This offers customers the on-line benefits of access, selection and immediacy in making real-time reservation/appointments over the Internet. The software product also simplifies the merchant’s booking process by providing a central web-based reservation/appointment management system that can be used for all
15 bookings, regardless if made by telephone, by a walk-in customer, or by a customer via the Internet. The software product also provides the merchant with a powerful direct marketing tool. As a merchant uses the software product, user-customer profiles and demographics are captured in the database module, thus creating (in Web jargon) a “community” of customers specific to the merchant. The merchant is thus empowered,
20 using the mail module, to directly communicate with its customer base, using customer profiles and demographics to create a highly targeted and effective marketing and promotion campaign. The software product also allows the merchant to auction off time-slot inventory over the Internet and to offer incentives to repeat customers, again resulting in increased revenue for the merchant. Lastly, the software product enables the creation
25 of Web “super-communities” consisting of the aggregate of all the individual merchant’s customer-communities using the software product.

Brief Description of the Drawings

Figure 1 shows an exemplary computer network in which the software product of
30 the present invention may be implemented.

Figure 2 shows a block diagram of an exemplary computer on which the software product of the present invention may be executed.

Figure 3 shows a diagram representing the major modules of the software product of the present invention.

5 Figure 4 shows several exemplary "super-communities" created by using the software product of the present invention.

Figure 5A shows an exemplary web home page for accessing the software product of the present invention over a network.

10 Figure 5B shows an exemplary membership sign-up web page for users to become a member of a community created by the software product of the present invention.

Figure 6A is an exemplary web page used for searching for a merchant using the software product of the present invention.

Figure 6B is an exemplary web page encouraging a merchant to become a member of a super-community created by the software product of the present invention.

15 Figure 6C is an exemplary web page encouraging an Internet user to recommend a merchant to become a member of a super-community created by the software product of the present invention.

Figure 7 is an exemplary web page showing the results of a search performed using the search web page of Figure 6A.

20 Figure 8 is an exemplary web home page of a merchant located by the search results found in the exemplary search of Figure 7.

Figure 9A is an exemplary web page for allowing an Internet user to define the criteria for making a reservation booking at the merchant's place of business.

25 Figure 9B is an exemplary web page for allowing an Internet user to search records of previously made bookings at the merchant's place of business.

Figure 10 is an exemplary web page that shows the availability of reservations for the Internet user's search criteria for a booking at the merchant's place of business.

30 Figure 11 is an exemplary web page that requires the Internet user to submit membership information to confirm a selected available reservation identified in the web page of Figure 10.

Figure 12 is an exemplary web page requiring the Internet user to submit credit card information to hold the reservation.

Figure 13 is an exemplary web page that confirms the booking at the merchant's place of business made by the Internet user.

5 Figure 14 is an exemplary web page that allows a merchant participating in a super-community created by the software product of the present invention to access information specific to that merchant.

Figure 15 is an exemplary web page that provides a merchant with several features performed by the software product of the present invention.

10 Figure 16 is an exemplary web page that provides a merchant access to the bookings at the merchant's place of business for a selected day and allows the merchant to find a reservation for a specific customer.

Figure 17 is an exemplary web page that displays the merchants reservation bookings for a selected day.

15 Figure 18 is an exemplary web page that allows a merchant to enter a booking into the reservation booking display of Figure 17.

Figure 19 is an exemplary web page that allows a merchant to confirm that a party with a booking has arrived at the merchant's place of business.

20 Figure 20 is an exemplary web page that allows a merchant to directly communicate with customers by electronic message.

Figure 21 is an exemplary web site that allows a merchant to access different portions of their web site (Figure 8) for editing.

Figure 22 is an exemplary web site that allows a merchant to edit a selected portion of their web site.

25 Figure 23 is a web super-community created by one embodiment of the present invention.

Figure 24 is a web super-community created by another embodiment of the present invention.

30 Figure 25 is a block diagram illustrating a relational database incorporated into the software product of the present invention.

Figure 26 is a flowchart illustrating the operation of the software product of the present invention.

Figure 27 is an exemplary web page for auctioning time-slot reservations over a network.

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Detailed Description of the Invention

Referring to Figure 1, a block diagram of a computer network in which the present invention may be implemented is shown. The network 10 includes a server 12 which executes the software product of the present invention, a plurality of routers 14, and a plurality of computers 16 located at remote locations from server 12. The server 12 and computers 16 are coupled together via the Internet 18. The server 12 and computers 16 communicate with one another using standard communication protocols, such as TCP/IP. It should be noted that the network of Figure 1 is only exemplary, and the server 12 executing the software product of the present invention and the computers 16 may communicate over any type of computer network, including LANs, WANs, wireless networks, and corporate intranets, and any type of networking protocol may be used including Ethernet, FDDI, ATM, etc. The server 12 and the computers 16 can be connected to the Internet 18 in any manner, including but not limited to using cable modems, standard modems, wireless modems, DLS lines, T-1 lines, etc. or a combination thereof. The server 12 can be any type of server, including but not limited to Unix, NT, Linux and Apple OS type servers.

Referring to Figure 2, a block diagram of the server 12 used to execute the software product of the present invention is shown. The server 12 includes a processor 20, memory 22, mass storage 24, a disk drive 26, a standard CRT or flat panel computer display 28, keyboard 30, mouse 32, speakers 34 and a network interface 36. The components 20 through 36 are coupled together and communicate via a system bus 38. The software product of the present invention is loaded into mass storage 24 of the server 12 in a conventional manner. During operation, the software product is transferred into

memory 22 and executed by processor 20. Information regarding the software product is presented on the display 28. A user may manipulate and use the software product and enter commands into the server 12 using the keyboard 30 and mouse 32. In alternative embodiments, a touch screen display unit may be used rather than a standard display 28.

5 In such an embodiment, the touch screen would operate as an input device and would be used in replacement of or in complement with other input devices, such as the computer's keyboard 30 and/or mouse 32. The network interface 36 couples the server 12 to the Internet 18 or whatever type of network is used to connect the server 12 with the other computers 16. Accordingly, a remote computer 16 can communicate with the server 12

10 running the software product of the present invention and vice-versa.

Referring to Figure 3, a block diagram illustrating the major modules of the software product of the present invention is shown. The software product 50 includes a web helper module 52, a security module 54, a database module 56, a mail module 58

15 and standard application program interfaces (APIs) 60. Each of these modules is described below.

Web Helper Module 52: This module includes a set of templates and icons that will enable the creation of semi-custom web pages. The templates and icons permit a user to easily create a web site. To create a web site, one or more of the templates included in the module is selected. The selected templates are semi-customized for a target application (e.g., restaurants, golf courses, movie houses, etc.) by selecting and dragging icons from a library of icons to locations on the templates and by entering text and graphics onto the templates. The web helper module 52 also includes other tools that allow the user to create browser-friendly, high-content, interactive, multi-media web sites. For example, the web helper module 52 includes features to include clip-art, photographs, video clips, sound bites, etc. In one embodiment, the web helper module 52 is developed using one or more of the following tools: Front Page Express

from Microsoft, Claris Home Page, Adobe GO Live, Adobe Photo Shop, Adobe Image Ready, Microsoft Development Studio. These tools enable the creation of dynamic hypertext web pages that are semi-customized for merchants in a selected vertical market.

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Security Module 54: The software module 54 provides for two types of security, including encryption to protect information sent over the Internet 18, such as user names, credit card numbers, phone numbers, and other personal or confidential information. The security module also includes protection to prevent information in the database module 56 from being stolen or corrupted by persons accessing the server 12 over the Internet 18. Any one of a number of known security techniques may be used. In alternative embodiments, the built-in encryption and password protection features standard on most commercially available servers can be used to prevent unauthorized access to the server 12 and database module 56. A Security Socket Layer (SSL) as offered by many credit card vendors (MasterCard, Visa, etc.) can be used to protect Internet transactions involving sensitive Internet user information, such as credit card numbers, etc.

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The Database Module 56: The database module 56 includes a relational database and search engine. The records, fields, search queries and other features of the database can be fully customizable for any application or semi-customized for a specific application. In alternative embodiments, the database module can be created using Microsoft's Active Server Page technology, SQL server technology, Database Artisan Software, or database products from Oracle Corporation, Redwood Shores, California for example. The details of the database 56 hierarchy and structure are described in greater detail below with regard to Figure 25.

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The Mail Module 58: The mail module 58 includes a feature that enables emails to be sent to selected users from the server 12. The emails can be manually sent by a person operating the server 12, they can be automatically generated by the server 12, or they can be generated remotely from a computer 16 and then sent to other computers 16 by the server 12. The email module may be configured to automatically query the database module 56 and send email messages to parties entered into the database module. For example, the mail module may generate emails to selected parties as a reminder of a reservation, or to send messages to customers, or to send advertisements to customers.

Standard APIs 60: The software product 50 includes standard APIs 60, so data and other information can be exchanged with other software systems.

The software product 50 creates and provides a number of compelling advantages for a merchant selling time-slot inventory and seeking to conduct business over the Internet. It enables the creation of web-sites for merchants with a built-in web-based reservation booking system. This offers customers the on-line benefits of access, selection and immediacy in making real-time reservation/appointments (hereafter generically referred to as "bookings") over the Internet. The software product 50 also simplifies the merchant's booking process by providing a central web-based reservation/appointment management system that can be used for all bookings, regardless if made by telephone, by a walk-in customer, or by a customer via the Internet 18. The software product 50 also provides the merchant with a powerful direct marketing tool. As a merchant uses the software product 50, user-customer profiles and demographics are captured in the database module 56, thus creating (in Web jargon) a "community" of customers specific to the merchant. The merchant is thus empowered, using the mail module 58, to directly communicate with its customer base, using customer profiles and demographics to create a highly targeted and effective marketing and promotional ad campaign. The software product 50 also allows a merchant to auction off time-slot

inventory and to run Internet-based promotional incentives to generate repeat business with customers. Lastly, the software product 50 enables the creation of Web “super-communities” consisting of the aggregate of all the individual merchant’s customer-communities using the software product 50. All of these features, beginning with the
5 super-communities, are described in detail below.

Super Communities

Referring to Figure 4, a block diagram illustrating several Web super communities is shown. The diagram illustrates a server 12 linked to each of four super-
10 communities via the Internet 18. The first super-community 72, generally aligned along a food service vertical market, includes a plurality of restaurants 74a - 74n including but not limited to diners, bistros, cafes, etc. Each restaurant merchant 74a - 74n has associated therewith a database 76a - 76n for storing booking information and customer information (a community of customers) associated with the merchant. Similarly, the
15 diagram shows other super-communities 78, 80 and 82 generally aligned along the golf, bed and breakfast, and salon industries respectively. Although not shown for the sake of simplicity, each of the merchants in the super-communities 78, 80 and 82 also have an associated database respectively. The databases for all of the merchants collectively form a large database 13 of merchants and respective customers. It should be noted that any
20 merchant in an industry where bookings by customers are generally made in advance may use the present invention. The invention in no way should be limited to applicability to only these exemplary vertical markets.

Referring to Figure 5, a proposed web home page for accessing each of the super-
25 communities 72 - 82 is shown. The web home page 90, which in one embodiment is hosted by the server 12, includes a brief written description of the web site host (in this example, the name of the host is eShock Corporation), a hot link 92 labeled “eCuisine” which provides a link to the restaurant super-community 72, a hot link 94 labeled “eGolf” which provides a link to a golf super-community 78, a hot link 96 labeled “B&B” which
30 provides a link to the bed and breakfast super-community 80. In addition, the web home

page 90 also provides a link 98 to a web page that allows Internet users to become a member of one or more of the super-communities, a link 100 that connects to the home web page of the organization hosting the home page 90 (e.g., eShock) and a link 102 which allows an Internet user to contact the host company via email. For an exemplary membership sign-up form which appears when link 98 is selected, see Figure 5B.

By way of example, the Applicants describe the present invention as it pertains to the restaurant industry. This description, however, should in no way be considered as limiting and the principles and features of the present invention could readily be used, with obvious modifications, for any industry where advanced bookings by customers is commonplace, including but not limited to the golf, bed and breakfast, salon, spa, cinema, sports, performing arts, medical industries, etc.

Internet Bookings

Referring to Figure 6A, an exemplary web home page 110 for the restaurant super-community 72 is shown. The web page 110 appears when an Internet user selects the eCuisine hot link 92 of Figure 5. The web page 110 includes a search window 112 which allows an Internet user to search and find a restaurant(s) by name (data entry field 114), by city (data entry field 116), by state (data entry field 118) and/or by type of cuisine (data entry field 120). In an alternative embodiment, one or more of the entry fields 114 - 120 can be replaced by or used in complement with a pull-down type menu as denoted by arrows 124. The data entry fields 114 - 120 and the pull-down menus 124 of search window 112 provide an Internet user with a tool to search and find one or more restaurants affiliated with the restaurant super-community 72. Entry 114 allows an Internet user to search for a specific restaurant by name. Entries 116, 118 and 120 allow a user to perform a broader search by city, state and type of cuisine respectively. The search request is submitted by selecting the "GO" icon 121.

The web page 110 of Figure 6A includes a second data entry window 130 which allows an Internet user to search and find multiple available reservations at different

restaurants **76** affiliated with the super-community **72** and meeting the user's search criteria. The window **130** includes data entry fields to enter a city name (**132**), state (**133**), date (**134**), the type of cuisine (**135**) and a requested time range (**136a** and **136b**). By completing one or more of the data entry fields (**132 - 136**), the user can craft a specific search meeting his or her needs. For example, if the searcher is interested in finding available reservations at Italian restaurants in San Francisco between 6:00PM and 8:00PM on Friday, April 30, 1999, the user is required to fill in the fields (**132 - 136**) and to submit the request by selecting the "GO" icon **137**. This will cause the software product **50** to check the database **76** of the affiliated Italian restaurants in San Francisco at the requested date and time for availability. The hot links (not shown) to the restaurants meeting the search criteria will then be displayed. The user can then peruse the web sites of these restaurants and make a reservation at a selected restaurant over the Internet as described below.

The restaurant home page **110** also includes a link **126**, labeled "Restaurant Sign-Up" which provides a link to a page that allows a restaurant to become a member of the restaurant super-community **72**. See Figure 6B for an exemplary restaurant sign-up page. The restaurant home page **110** also includes a link **128**, labeled "Recommend a Restaurant". Link **128** provides a link to a page that enables an Internet user to recommend a new restaurant to the host of the restaurant super-community **72**. See for example Figure 6C. The web page **110** provides a link **130** labeled "FAQs" which provides useful information about the restaurant super-community **72** and a link **132** labeled "Restaurant Maintenance Center" which will be described in greater detail below.

The restaurant sign up web page (Figure 6B) provides a restaurant with an easy, inexpensive and quick way to become an affiliated merchant **76** in the restaurant super-community **72**. By submitting all of the appropriate information, the host of the server **12** can create the database **76** for the merchant on the server **12**. In addition, the host can create a web site for the merchant using the web helper module **52** of the software product **50**. Using the web page templates, the host can quickly create a web site for the

merchant. All the merchant is required to do is provide the host with the relevant information, such as a menu, specials, wine list, reviews, etc. along with photos and/or other graphics pertinent to the merchant. This information is then "plugged-in" to the templates created for the merchant's vertical market (e.g. restaurants) and the merchant will have a semi-customized web site interfaced with the on-line reservation system described in this application. Similarly, an existing web site can be updated in an identical manner, thus providing an easy way for the merchant to maintain an up-to-date web site. In alternative embodiments where the merchant already has a web site, that web site can be "seamlessly" integrated with the software product 50 of the present invention by providing the appropriate links between the merchant's web site and the software product 50 maintained on the server 12.

Referring to Figure 7, the results for an exemplary search request using search window 112 or 130 is shown. In this example, the search results 140 were obtained by a user entering "California" into data entry field 118 and a "select all" choice for the "Select Cuisine" data entry field 120 using a pull-down menu 124. As is illustrated in Figure 7, the search results provides a first column that includes hot links 142a - 142n to the home page of each restaurant meeting the search criteria and affiliated with the restaurant super-community 72, the second column provides the street address of each restaurant, the third column provides the type of cuisine, the fourth column provides a link 148 to a brief description of the restaurant as published by a restaurant rating organization, such as Zagat's or AAA, the fifth column provides one or more dollar signs denoting the price range of the restaurant and the sixth column provides links 150 to an Internet "bulletin board" where the Internet user can review comments made by previous diners or enter their own comments regarding one of the restaurants.

The search results 140 provides a wealth of pertinent information that the Internet user can access at a glance or by selecting any of the hot links 142, 148 and 150. Not only can the user learn of the type of cuisine or the relative cost of an establishment, they can learn what other patrons think of the restaurant. For example, by selecting a hot link

150 associated with one of the listed restaurants 142, a user can review recommendations from other patrons that have dined at the establishment. As a proprietor of a restaurant will understand, word of mouth recommendations are generally the best form of advertising. The hot link 150 thus provides an Internet forum where users can voice their
5 recommendations to a vast audience of Internet users. This aspect of the software product 50 may therefore be extremely beneficial to a merchant participating in the restaurant super-community 72 because it helps "spread the word" that a particular restaurant is worthy of an Internet user's patronage.

10 Referring to Figure 8, the web home page of the "Grandview Restaurant" as listed in the search results 140 is illustrated. This web page 170 appears when the Internet user selects the icon 142a that corresponds to Grandview. The web page 170 includes a hot link 172 to view the menu of the restaurant, a hot link 173 to view the specials, a hot link 174 to view the wine list, a hot link 175 to view photos of the restaurant, and a hot link
15 176 to view any published reviews about the restaurant. Although not illustrated and discussed for the sake of brevity, the menu link 172, the specials link 173, the wine list link 174, the photo link 175 and the link 176 to any reviews can be very informative to the Internet user. It provides a restaurateur with the ability to entice customers, by posting menu offerings, specials, wines, etc. and photos of the establishment on the
20 Internet, thus providing exposure of the restaurant to potentially millions of Internet users. The link 176 is also very useful because it allows the restaurateur to post any reviews, for example in a culinary magazine such as *Food and Wine* or *Gourmet* as well as reviews in local newspapers, etc. on the Internet. An Internet user viewing the web site thus has the ability to review a wealth of information regarding the establishment before
25 making a decision to dine at the restaurant.

The web page 170 also includes hot links 177 which enables an Internet user to make a reservation at the Grandview Restaurant over the Internet. Referring to Figure 9, a web page 190 for making a reservation is shown. When the Internet user selects the
30 reservation link 177, the web page 190 appears. The web page 190 provides the user with

an interface which requires the user to enter the date of the requested reservation into window **192** and the size of the party in window **194**. In an alternative embodiment, this information could be entered into the two windows **192** and **194** using a pull-down menu feature **124**. The web page **190** also includes data entry fields for smoking/non-smoking **193a**, for entering any special dietary requests **193b**, or for informing the restaurant that the Internet user is celebrating a special occasion **193c**. Once the entries are made, the Internet user is required to select the GO icon **195** to submit the request. In an alternative embodiment, the user could select the date by choosing a day from a graphical representation of a calendar.

The web page **170** of Figure 8 also includes a link **178** that enables a user to cancel a reservation made over the Internet. Referring to Figure 9B, a web page **196** is shown. Web page **196** appears when a user selects the "Cancel a Reservation" hot link **178** of Figure 8. The web page **196** includes a data entry window **197** that includes date entry fields for the party name, date of reservation, email address, user ID and password. By entering the appropriate date into one or more of these fields and selecting the "GO" icon **198**, the user can perform a search for all the future reservations containing matching user information in the merchants database **78**. The search results are then displayed to the user along with a "Cancel" icon (not shown) for each found record. By selecting the cancel icon, the corresponding reservation record is removed from the database, effectuating the cancellation of the reservation.

Referring to Figure 10, a web page **200** indicating the availability of a table for the specified party size and date is shown. The web page **200** appears when the user enters and submits the date, party size, etc. in the data entry fields of Figure 9. The web page **200** includes a brief text message **202** which reminds the user of the selected table size and date of the requested reservation. A chart **204** includes a first column **206** that provides a list of all the time-slots at the restaurant for tables of the appropriate size. In the embodiment shown, the time-slots are shown in half-hour increments. This amount of time is arbitrary and any time increment could be used. A second column of hot links

208 indicates if a given time-slot is either "Available" or "Not Available". To make a reservation, the user simply selects a hot link 208 labeled "Available" corresponding to a desired time, which causes the next web page to appear. When no tables of the requested size are available for a given time-slot 206, then the corresponding hot link 208 is set to "Not Available" and is deactivated. In other words, if a restaurant has a total of six tables with a seating capacity of four persons, a given time-slot will be labeled "Not Available" only after the sixth table is booked. Consequently an Internet user cannot reserve this time-slot since all the tables are booked.

Referring to Figure 11, a web page 220 requesting information of the Internet user to reserve an available time-slot is shown. This web page 220 appears after the user selects a hot link 208 corresponding to an available time-slot as described above. The web page 220 includes a brief text message 222 indicating that a table for the requested party size and date has been found. The reservation can be made in one of two ways, depending if the Internet user is a member of the super-community 72. For user-members, the web page 220 includes a first window 224 which requires the member to enter their member ID in a data entry field 226 and a user password in data entry field 228. The member can confirm the reservation by selecting the "Logon" icon 230 once the fields 226 and 228 are completed. The web page 220 also includes a second window 232 that permits a non-member Internet user to join the restaurant super-community 72 and to confirm a reservation. The window 232 has a number of data entry fields including one for selecting a login name, choosing a password, confirming a password, first name, last name, street address, city, state, zip code, phone, email address and select buttons 234a and 234b for allowing the user to indicate if they wish to receive promotional emails. In accordance with other embodiments, the window can be customized to request any other demographics or user information, such as a user's interests, income, etc. Once a new member has filled in the data entry fields in window 232, the new member can confirm the reservation by selecting the "GO" icon 236.

Referring to Figure 12, a web page **240** requesting a user's credit card information to reserve the requested table is provided. This web page **240** appears to the user after the previous web page **220** has been completed and either the "GO" icons **230** or **236** have been selected. The web page **240** requires the user to enter their credit card number into data entry field **242**, the type of credit card into data entry field **244** and the card expiration date in data entry field **248**. This information is then submitted using the "GO" icon **250**. In optional embodiments of the invention, the Internet user may be informed that their credit card will be charged with a transaction fee and/or a no-show fee as provided in the text message **252**.

Referring to Figure 13, a web page **260** which includes a brief text message **262** indicating that the requested reservation has been confirmed at the requested date. When the "GO" icon **250** of Figure 12 is selected, the user information is written into a record corresponding to the selected time-slot in the database **76** affiliated with the merchant. When the reservation is made, the mail module **58** generates and emails the message **262** to the user, thus providing a real-time confirmation of the reservation.

The aforementioned description of the software product **50** provides Internet users with a number of benefits. It empowers Internet users to easily search and find merchants in a selected vertical market and it provides such users with 24/7 access to making reservations, not just when the merchant is open. It provides users with a wealth of on-line information about each merchant participating in the super-community. It also provides immediacy in allowing users to see both the available and not available time-slots at a glance and immediate "delivery" in the form of an instantaneous confirmation of a reservation. Since the process is automated, it also eliminates many of the "hassles" of making reservations, such as calling a restaurant and being placed on hold, lost reservations, etc.

Merchant Maintenance

The software product 50 also provides numerous benefits to merchants participating in the super-community. The software product 50 naturally creates a community of the merchants' Internet user-customers, allowing the merchant to simply and cost-effectively increase revenues by: (i) increasing its customer traffic through email-based direct marketing to a community of Internet user-customers; (ii) providing a wide-reaching electronic forum for customers to receive information about the merchant and "word-of-mouth" endorsements via the community of participating Internet user-customers; and (iii) gain wide exposure and attract new customers through the super-community which attracts a large number of Internet users having an interest aligned with the vertical market of the merchant. In addition, the software product 50 automates and simplifies the merchant's bookkeeping and reservation/appointment tracking system and provides valuable traffic statistics and user demographics that can be used by the merchant to optimize business results. These features and advantages of the software product 50 are described in detail below with regard to the restaurant super-community 72. Of course these same features and advantages are also available to merchants in the aforementioned other vertical communities.

Returning again to Figure 6A, hot link 132 labeled "Restaurant Maintenance Center" is provided on the web page 110 for merchants participating in the restaurant super-community 72. This link provides individual merchants with access to their specific booking information, direct marketing tools, and tools permitting the merchant to update their web site, for example as provided in Figure 8.

Referring to Figure 14, a web page 280 entitled "Restaurant Center" is shown. The web page 280 appears when the hot link 132 of web page 110 is selected. The web page 280 includes a text message 281 inviting a non-member restaurant to join the super-community 72 and for participating restaurants to log-in using window 282. Window 282 includes data entry fields 284 and 286 which requires the merchant to enter their unique user name and password respectively, which were defined by the user when they

became an affiliated member of the super-community (See Figure 6B). The merchant is then required to select the "GO" icon **288** to access the information specific to their establishment. Since only the merchant has their unique user name and password, no other party can gain access to the merchant's web site, customer database and booking information contained in the merchant's database **76**.

Referring to Figure 15, a web page **300** is shown. Web page **300** appears after a merchant who is a member of the super-community **72** enters their correct user name and password on web page **280**. Web page **300** includes a text message **301** that informs the merchant that they can manage their table bookings, perform direct marketing to their Internet customer base, and that they can revise their web site. To perform these functions, hot link **302** entitled "Reservation Manager", hot link **304** entitled "Direct Marketing", hot link **305** entitled "Revise Web Site", hot link **306** entitled "Create Table Reservation Template", and hot link **308** entitled "Log Out" are respectively provided. The "log out" hot link **308** will return the merchant to the Restaurant Search page **110** when selected.

Referring to Figure 16, a web page **310** is shown. The web page **310** appears when the merchant selects the Reservation Manager hot link **302**. The web page **310** includes a window **311** that includes a select date entry field **312** and a select party size data entry field **313**. In alternative embodiments, the data to be inserted into fields **312** and **313** using pull down type menu arrows **124**. To view all the bookings at the restaurant or to make a new reservation on a given day, the merchant is required to enter the desired date into field **312** and then select the "GO" icon **314**. By entering a specific size (e.g., "2"), only tables for two will be displayed when the request is submitted. The web page **310** also includes a Customer Search window **315**. This window includes data entry fields for a customer's last name (**316a**), first name (**316b**), phone number (**316c**) and email address (**316d**). By entering the relevant information into one or more of the data entry fields **316(a-d)**, the merchant can perform a search inquiry to locate a previously made reservation made by the customer when the "GO" icon **318** is selected.

This is accomplished by searching the database 76 affiliated with the merchant for a matching record. When the record is found, the corresponding reservation time-slot (as described below) is highlighted.

Referring to Figure 17, a web page 320 is shown. The web page 320 appears when the merchant selects either the "GO" icons 314 or 318 of a web page 310. The web page 320 includes a text message 322 that indicates the selected date and a spreadsheet 324. The spreadsheet 324 includes a first row 326 which identifies the table numbers for all or some of the tables in the restaurant, a second row 328 indicates the table size of each listed table, and the remaining rows 330a - 330z designate time-slots 332. For each row 330, a time-slot 332 is provided for each table listed in row 326. In the embodiment shown in Figure 17, the time-slots are spaced apart in fifteen minute increments for both the lunch hours (11AM - 2PM) and dinner hours (5PM - 9:15PM). In alternative embodiments, the time-slots can be selectively incremented by any timing interval and the lunch and dinner hours can be defined by any time periods respectively, depending on the merchant's requirements. When a Party has made a reservation, the Party's name will be entered into the reserved time-slot 332 and is highlighted on the spreadsheet 324. This feature allows the merchant to quickly locate the Party's reservation. By way of example, the spreadsheet shows that Stephen Spielberg has a table for 2 reserved at 12PM on April 23, 1999 and that Sandra Bullock has a table for 2 reserved at 11:45AM on this same date. The time-slots 332 for tables that do not have a name entered therein are available for reservation. The web page 320 also includes a data entry field 334 which allows a merchant to type in a Party's name. When the "GO" icon 336 is selected, the time-slot 332 reserved in the Party's name is highlighted. This feature thus provides a quick search tool to find a reservation on the spreadsheet 324.

The software product 50 accommodates all the possible ways a customer can make a reservation at the merchant's establishment. As previously described, the software product 50 enables an Internet user to make a reservation at the merchant's place of business over the Internet. When such a reservation is made, the selected time-slot 332

in the spreadsheet **324** is automatically updated with the customer's name to reserve that time-slot. When an Internet user makes a reservation for a table on a particular day and at a selected time, the user information is written to records associated with the time-slot in the database **76** affiliated with the merchant. The Internet user's name thus appears in the time-slot **332** in the spreadsheet **324** for the day of the reservation. In addition, the software product **50** also allows the merchant to enter reservations into the spreadsheet **324** to accommodate customers making reservations in more traditional ways, such as by telephone or by walking into the establishment. For example, when a customer calls looking for a reservation, the merchant will navigate the various web pages of the software product to get to the web page **320** which displays the reservation spreadsheet **324** for the date the reservation is desired. Then once the customer has decided to accept a reservation at an available time-slot **332**, the merchant selects that desired time-slot **332**.

Referring to Figure 18, a web page **350** is shown. The web page **350** appears when one of the available time-slots **332** of the spreadsheet **324** is selected, for example when the merchant is making a reservation for a customer calling on the phone. The web page **350** includes a window **352** which includes data entry fields for entering a party's name (**354**), the size of the party (**356**), whether a smoking or a non-smoking table is requested (**358**), a field for entering special dietary requests (**360**) and whether the party is celebrating a special occasion (**362**). The window **352** also includes a data entry field **363** which is used to block out the corresponding time-slot **332**. A merchant would block out a time-slot **332** to prevent it from being reserved, thus providing the merchant with flexibility to assign the table on an ad-hoc basis. Returning to our example, when the merchant inserts the above-defined customer information into fields **354** - **362**, the merchant is then required to select the "GO" icon **364** to make the reservation. When this occurs, the spreadsheet **324** of Figure 17 is automatically updated to indicate that the telephoning party has reserved the requested time-slot **332**. This is accomplished because the software product **50** writes the customer information captured in window **352** into the records in the merchant database **76** corresponding to the selected time-slot **332**. The software product **50** would be operated in a similar manner for a walk-in at the

merchant's establishment. The spreadsheet **324** thus has the ability to graphically display all the bookings for a particular day regardless if made by customers using the Internet, by telephone or walk-ins. In alternative embodiments, the window **352** can appear as a separate web page or can appear as a window overlapping a portion of the spreadsheet

5 **324** of Figure 17.

The software product **50** also allows a merchant to update the software product **50** when a party with a reservation arrives at the restaurant. When this occurs, the merchant is required to find the Party's reservation, either visually on the spreadsheet **324** or using

10 the data entry field **334** of Figure 17. Once the Party's time-slot **332** is found, it is selected by the merchant. This causes, as illustrated in Figure 19, a window **360** to appear. The window **360** includes a text fields **362a - 362e** where the Party's name, size, smoking or non-smoking preference, special request information, etc., is displayed. The window **360** also includes a data entry field **364** which allows the merchant to indicate if

15 the Party has arrived. When the merchant submits that the Party has arrived, the window **360** disappears from the spreadsheet **324** and the corresponding time-slot **332** is automatically highlighted to indicate that the Party has arrived and is being seated. The window **360** also includes a field **366** which allows the merchant to change/cancel a reservation. Again in alternative embodiments, the window **360** can appear as a separate

20 web page or as a window overlapping a portion of the spreadsheet **324** of Figure 17.

The software product **50** also allows a merchant to modify or cancel a reservation after it has been made. For example, if Mr. Spielberg called ahead of time and requested to change his reservation at the designated time, the merchant would visually search and

25 find the time-slot **332** reserved in his name on the spreadsheet **324**. In the alternative, "Spielberg" could be entered into data entry field **334** to automatically locate the time-slot **332** reserved by Mr. Spielberg. In either way, the merchant would then select the reserved time-slot **332** and cut and paste it to another available time-slot **332** on the spreadsheet **324** for the same day or another day. The cut and paste operation causes the

30 user information stored in the original records in the database **76** to be cut and moved to a

second set of records corresponding to the second time-slot 332. In an alternative embodiment, the merchant can select the time-slot 332 causing the window 360 of Figure 19 to appear. By selecting the "Yes" icon associated with the cancel/change data entry field 366, the reservation record in the database 76 is removed, canceling the reservation.

5 If the Party wishes another time, the reservation can be made by using the same steps as provided above.

As previously noted, web page 300 of Figure 15 includes the hot link 304 for Direct Marketing, the hot link 305 to revise the web site and the hot link 306 to create
10 table reservation templates. Each of these features are now described below.

Referring to Figure 20, a web page 400 for performing direct marketing by the merchant is illustrated. The web page 400 appears after the merchant selects the hot link 304, which causes the mail module 58 of the software product 50 to be accessed. The
15 web page 400 includes a text entry field 402 for entering messages and a "GO" icon 404 for emailing the message(s) entered into the text entry field 402 to Internet users stored in the database 76 affiliated with the merchant. The web page 400 thus provides the merchant with a highly effective, easy to use, electronic tool to communicate with their customer base. For example, the merchant can use this tool to inform customers of
20 promotions, specials, upcoming events, open reservations, electronic newsletters, etc. This feature can therefore significantly help the merchant's business by creating a sense of community among customers, and by using promotions to entice customers to increase traffic at the merchant's place of business. The mail module 58 can also be programmed to automatically send out emails to Internet users. For example, the mail module 58 can
25 be programmed to send out a reminder of a reservation to an Internet user a predetermined time prior to a booked reservation. The mail module 58 could also be programmed to automatically send out an email the day after a reservation asking for feedback on their dining experience. The email, in one embodiment, could include some type of a promotional reward or electronic coupon to encourage a reply email and to
30 entice the user to return to the establishment. In yet another embodiment of the

invention, an individual merchant 74 could pay or otherwise barter for access to other Internet users that are part of the super-community 72.

Referring to Figure 21, a web page 410 for revising the merchant's web site is shown. The web page 410 appears after the merchant selects the hot link 305 of the web page 300 as illustrated in Figure 15, which causes a portion of the web helper module 52 of the software product 50 to be accessed. The web page 410 includes a pull down menu 412 which allows the merchant to select which portion of the web site of Figure 8 is to be revised. Again using a restaurant example, the entries for the pull down menu 412 may include specials, the food menu, the wine list, reviews, etc. Once the merchant has selected the portion of the web site to be revised, the "GO" icon 414 is selected to make the actual changes.

Referring to Figure 22, a web page 420 for revising the merchant's food menu is shown. The web page 420 appears when the merchant selects the "food menu" using the pull down menu 412 of web page 410 of Figure 21. The web page 420 includes a text field 422 which lists each item on the food menu. Each item is identified by an item number 424, a description of the item 428, and an item price 430. The web page 420 also includes data entry fields for entering an item number (field 432), a dish name 433, a description of the item (field 434) and the price of the item (field 436). To revise an existing item listed in the text field 422, the merchant is simply required to type the item number 424 into the field 432, the name of the new dish into field 433, the new description of the item into field 434, and the price into field 436. When the "GO" icon 438 is selected on the merchant's computer, the item number 424 in the text field 422 will automatically be updated with the new dish name, description and price. New items are added in an identical manner. To add a new item in the example shown in Figure 22, the merchant would be required to enter an item number "6" into the field 432 and then enter the dish name, description and price. This feature allows a merchant to quickly, inexpensively and easily revise and maintain an up-to-date web site. The merchant can therefore keep the Internet using public informed on the latest happenings at her place of

business. Thus in embodiments of this invention where the server 12 hosts the merchant's web site, a merchant can update his or her web site from a remote location over the Internet 18.

Super-Community Embodiments

As previously discussed, the software product 50 of the present invention enables the creation of web "super-communities" made up of the aggregate of the individual merchants in a given vertical market. A description of how the super-community concept is implemented in two exemplary embodiments is described below.

Referring to Figure 23, a block diagram illustrating the implementation of a web super-community is shown. The super-community 500 includes a server 12 executing the software product 50, a plurality of merchants 74a - 74n each operating a computer 16a - 16n respectively, and coupled to the server 12 via the Internet 18. Also included in the super-community 500 are the Internet users designated by reference number 502. A master copy of the databases 76a - 76n of customers and reservation information for each merchant 74a - 74n is stored on the server 12. In the aggregate, the master copies of the merchant databases 76 form the "super-community" of Internet users 502 and merchants 76a - 76n. A cache copy 504a - 504n of the reservation information pertinent to each merchant 74a - 74n is locally stored on the merchant's computer 16a - 16n respectively. In this embodiment, the server 12 is used to execute the software product 50 and to host the web sites 170 (Figure 8) of each of the merchants 76a - 76n in the super-community 500. As previously noted, these web sites 170 along with the host web site 90 (Figure 5) are accessible over the Internet 18 by both users 502 and the individual merchants 76a - 76n.

A user 502 seeking to book a reservation at one of the merchants 76 can do so as described in relation to Figures 6-12 above. If the user 502 is undecided as to where to make a reservation, the search windows 112 and 130 (Figure 6A) empowers the user 502 to find and peruse the web sites of various merchants 76 affiliated with the super-

community 500. Alternatively, the user can go directly to the web site of an affiliated merchant 76 if they know the URL for that site. In either case, the user's information captured in data entry window 232 (Figure 11) and their reservation booking information is captured and stored in the master database 76 affiliated with the merchant 74 on the server 12. This information is then automatically written via the Internet 18 to the cache copy 504 on the computer 16 of the merchant 76. The merchant therefore has a local "back-up" copy of all the reservation and user information pertinent to the merchant. This information could be beneficial in the event the Internet 18 was down or the server 12 was otherwise inaccessible by the merchant 76. In an alternative embodiment, the user may not receive an automatic confirmation of a reservation until the merchant's computer 16 has sent an acknowledgement that the booking has been written to the cache copy 504 of the merchant. This would prevent an Internet user 502 from believing that a reservation has been booked with the merchant when in fact it has not, typically due to a technical difficulty such as the merchant's computer 16 or the Internet 18 being down.

Similarly, a merchant 76 can access their Maintenance Center (hot link 132 of Figure 6A) and access and manage their bookings, perform direct marketing, service their web sites, etc. as described with respect to Figures 15-22. The merchant 76, just like a web user 502, can also make a booking for either a party seeking to make a reservation via the telephone or as a walk-in, using their computer 16 to access their database 76 located on the server 12 over the Internet. The only difference being is that in the case of the merchant 76, the booking is made through the Maintenance Center as described above. Again in various embodiments of the invention, reservations made by the merchant for either walk-in or telephone-in customers, can be written into the cache copy 504 of the computer 16 residing at the merchant's place of business.

Referring to Figure 24, a block diagram illustrating another implementation of a super-community is shown. The super-community 600 includes a server 12 and a plurality of computers 12, each associated with a merchant 76 in the super-community 600 (for the sake of clarity, only one computer 12 is shown). In this embodiment, each

computer 12 at a merchant 76 location is an SQL server or a similar server capable of hosting a web site and maintaining and accessing a database. The computer 12 is used to host the merchant's web site (Figure 8) and maintain a master copy of the database 76 that contains the user information and reservation information for the merchant 76. When a reservation is made, either via the Internet 18, or by a walk-in or by a customer over the telephone, that customer and reservation information is stored in the master copy 76. This same information is also sent over the Internet 18 to a slave copy of the database 602 maintained on the server 12. Again in the aggregate, the slave copies 602a - 602n of all the merchants 76a - 76n make up the super-community 600. In this embodiment, the server 12 would host the super-community web page (i.e. Figures 6A, 6B, 6C, 7 and 8) and the hot links 142 for each merchant's web site (Figure 7) would link the Internet user to the computer 12 of the merchant 76.

Database Hierarchy

Referring to Figure 25, a block diagram illustrating the hierarchy of the database 13 used in the software product of the present invention is shown. The database 13 (Figure 4) is a relational database which includes a plurality of sub-databases 76a - 76n for each merchant respectively. Each sub-database 76 includes records which contain a merchant ID, merchant name and address, and a pointer 704 which points to another sub-database 706 specific to the merchant identified in the sub-database 76. The sub-database 706 includes a plurality of pointers, each pointing to all the components of the web site for the merchant. In the embodiment shown in Figure 25, the sub-database 706 includes pointers to the merchants menu, wine list, specials etc. and pointer 708 which points to another sub-database 710 which contains the booking information for the merchant. The sub-database 710 includes a plurality of records 712a - 712n, each for a specific day. The records 712 include a database structure 714 that a plurality of time-slots. Each time-slot, for the restaurant example, is identified by a table number and a time increment. For other vertical markets, the appropriate descriptors would be used to identify each time-slot. The database structure 714 also contains a pointer for each time-slot. In the event a given slot is booked, the pointer points to a record 716 that contains the name and ID of

the person that has reserved the slot. The record 716 also includes a pointer that points to a record containing all the membership information of the person booking the time-slot in a customer database 718. The customer database is therefore a large database that contains the aggregate of the individual records, including the membership information,
5 of each user-customer for all the merchants, thus defining a super-community of users.

Product Operation (Flowchart)

Referring to Figure 26, a flowchart illustrating the operation and sequence of the software product 50 of the present invention is shown. Initially the portal web site of Figure 5 is accessed (box 802). The viewer, either an Internet user or a merchant, then
10 selects a vertical market (box 804). Once a vertical market is selected, the web page of Figure 6A which is an example of a home page for a vertical market is displayed (box 806). At decision diamond 810, an Internet user can proceed with making a booking over the Internet or a merchant can access the Merchant Center by selecting the appropriate
15 links provided on the web page of Figure 6A.

In the case of an Internet user, a search query is typically submitted to identify one or more merchants in the vertical community (box 812). The user can then view the web sites for the merchants (box 814) meeting the search criteria and make a booking request
20 (box 816) at a selected merchant. The software product then displays to the user both available and not available time-slots during the time period defined by the user at the merchant's place of business (box 818). The user is then able to book a selected time-slot (box 820) which is automatically written in the merchant's database 76. The software product 50 sends an email confirmation to the user after the booking has been made (box
25 822) and subsequent reminder emails (box 824).

Merchants on the other hand are required to decide (decision diamond 830) whether they would like to perform direct marketing (box 832), update their web site (box 834), or manage their bookings. In the event the management of the bookings is
30 selected (diamond 836), the merchant must elect if the booking transaction involves a

change in a party's booking (box 838), the arrival of a party (box 840), or a booking for a walk-in or a telephone customer (box 842).

5

On-Line Auctions

The software product 50 of the present invention also provides merchants with the ability to create on-line auctions for time-slot inventory. Under certain business conditions where the demand for time-slots is very strong, the merchant may wish to sell
10 bookings to the highest bidder, rather than at the regular cost for the booking. For example, a hotel located near the stadium where a major sporting event is to occur, such as the Super Bowl, may wish to auction its room booking for the weekend of the big game. Given the high demand for conveniently located hotel rooms, there is a strong likelihood that the final bid for the room would be higher than the standard price for the
15 room.

Referring to Figure 27, an exemplary web page 900 used for holding an Internet auction for a time-slot. The page 900 includes a window 902 that provides a brief description of the available time-slot, a window 904 for the merchant to enter the opening
20 price, a window 906 for providing the date for the close of the bidding, a window 908 for providing the current highest bid, and a data entry field 910 in which registered users can enter bids when the "GO" icon 912 is selected. The text message 914 informs the Internet user that their bid will be binding if accepted. The web page 900 therefore allows Internet users to submit bids for the time-slot. Since the reservation will typically
25 go to the highest bidder, the merchant may generate more revenue than by offering the reservation at the standard rate on a first-come first-serve basis.

The software product of the present invention provides numerous opportunities for Internet users, merchants, and the host of the "super-communities". For Internet
30 users, the present invention provides selection, speed and immediacy in making bookings

at merchants affiliated with the super-community. It allows merchants to participate in the Internet revolution like never before, send direct marketing correspondence to customers, and automate their reservation booking process. And finally, the host of the super-community can enjoy numerous e-commerce benefits, such as selling advertising space, goods and other services to the members of the super-community. While the invention has been described in relationship to the embodiments shown in the accompanying figures, other alternatives, embodiments and modifications will be apparent to those skilled in the art. It is intended that the specification be only exemplary, and that the true scope and spirit of the invention be indicated by the following claims.